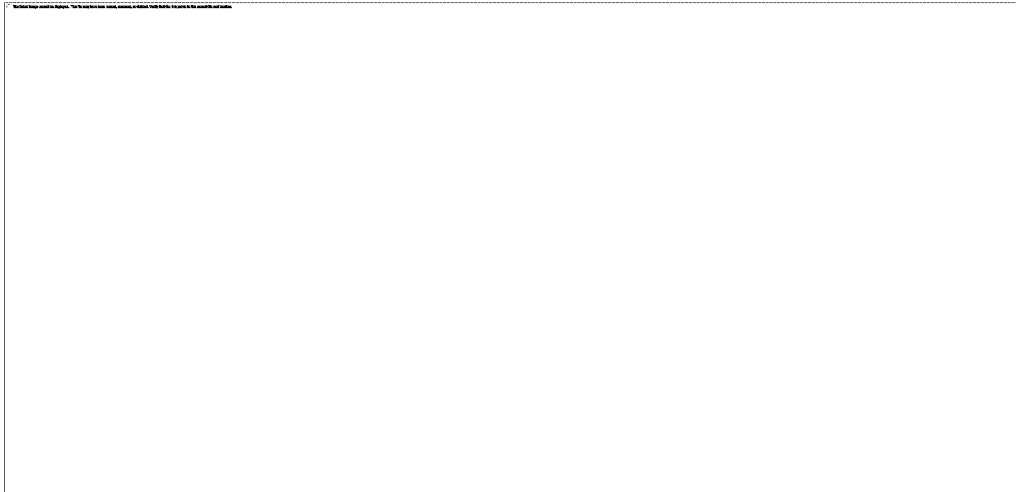


Message

From: Woodbury, Lynn [woodburyl@cdmsmith.com]
Sent: 3/10/2020 4:25:41 PM
To: Greene, Nikia [Greene.Nikia@epa.gov]
CC: Partridge, Charles [Partridge.Charles@epa.gov]
Subject: RE: Following up on my phone call earlier...
Attachments: ATT00001.txt

The Turker et al. 2013 discrepancies Professor Hartshorn mentions are due to the fact that Turker also had a units error. You could provide him with the email from Turker acknowledging the error (excerpt is below) –



+++++

Lynn Woodbury | CDM Smith | 555 17th Street, Suite 500 | Denver, CO 80202 | direct: 303.383.2382 | fax: 303.308.3003 | woodburyl@cdmsmith.com

From: Tony Hartshorn Ex. 6 Personal Privacy (PP)
Sent: Tuesday, March 10, 2020 10:02 AM
To: Greene, Nikia <Greene.Nikia@epa.gov>
Cc: Partridge, Charles <Partridge.Charles@epa.gov>; Woodbury, Lynn <woodburyl@cdmsmith.com>
Subject: Re: Following up on my phone call earlier...

Fantastic Nikia--thank you. There's a lot to unpack here.

I guess what we try to do as teachers is hope our students understand messaging like

*"Trust a numbers-based argument, especially if it's been peer-reviewed.
But verify those numbers and interpretations because even though the scientific approach is awesome (e.g., COVID-19!), it's practiced by humans, which makes it susceptible to bias and error."*

Before I dive too far down this meconium rabbit hole, is your team sure on your translation of meconium Zn concentrations in 291 surviving infants (Table 2) from Turker et al. 2013 (Ped Int'l; you first report their Zn number on slide 13 you shared)? I took the median surviving infant birthweight of 2070 g, converted it to 2.07 kg (as it appears your team did as well), and then multiplied that by their median Zn level for that cohort of 92 ng/g/kg (Table 2) to obtain 190 ng/g.

But your slide 13 reports 190 ug/g and so I think is 1000X too high. Am I off?

Same issue with copper, by the way. I took Turker et al.'s Table 2 copper concentration of 48 ng/g/kg * 2.07kg to get 100 ng/g, but your materials show 100 ug/g.

Here's the slide I lectured with in mid-February from Turker et al. 2013.

Table 1 Prenatal risk factors and demographic characteristics

	Surviving (n = 291) n or median (min-max)	Non-surviving (n = 13) n or median (min-max)
Gestational age (weeks)		
24-26	3	6
27-29	9	5
30-32	65	0
33-36	214	2
Birthweight (g)	3070 (700-3820)	715 (570-2510)
Small gestational age	10	3
Barratt score	20 (3-63)	19 (5-63)
Sex (F/M)	137/154	6/7

Table 2 Meconium toxic metals and trace element levels vs survival

	Surviving (n = 291) Median (min-max)	Non-surviving (n = 13) Median (min-max)
Lead (ng/g/kg)	14.9 (5.2-57.1)	44.1 (14.2-73.8)
Cadmium (ng/g/kg)	1.2 (0.36-5)	3.5 (1-7.9)
Zinc (ng/g/kg)	92 (29-361)	259 (61-498)
Iron (ng/g/kg)	55.6 (19.9-227)	153.3 (48.8-201)
Copper (ng/g/kg)	48.2 (18.4-167)	155 (37-179)
Take-home message #3: Turkish cohort (n=304) showed median meconium Cu (MMC) levels of ~100 ug/kg (reported as 48.2 ng/g/kg * 2.07 kg)		
		Pb Zn
		~31 ~190
vs. Butte MMC levels of 35,300 ug/kg		<0.1 81,642
vs. SC MMC levels of ~15 ug/kg		<0.6 43

Please don't mind my typo where I mis-represented the cohort size. It should be 291. I don't think these are very big deals in the grand scheme of things, but obviously they totally (in my naive view) change your log Y scale series of graphs.

Such an adventure. To be continued.

On Tue, Mar 10, 2020 at 7:19 AM Greene, Nikia <Greene.Nikia@epa.gov> wrote:

Hi Tony,

Nice to meet you and It is great to have professor like you that encourages students to not take science for granted and the word of any independent researcher (i.e. do your research before forming an opinion/conclusion). Thank you!

I have copied Charlie (EPA Risk Assessor) and Lynn (CDM Risk Assessor) in case they want to way in.

Attached is a presentation and summary figures we gave at the Butte Silver Bow Board of Health meeting on Feb. 5, 2020. Also, we are currently drafting a letter to the Journal proposing a retraction and will be interested in your student results from this project. Please keep us posted and reach out if you need any additional support.

Thanks,

greene.nikia@epa.gov

So here I am. As I also mentioned in my voicemail, I've asked my students to prepare fake memos to an EPA remedial manager, supporting or opposing the request that the journal retract the McDermott et al. article. Of course their memo had to assemble evidence in support of or opposing the notion. Here is the table they are to assemble in teams.

Scour some pubs for context for these numbers at left: Are Butte's #s high or Columbia's #s low?

	Butte, MT N = 33	Columbia, SC N = 32	Median rank from 33 p-value	p-value proport
	Study 1: 2010-11 Season: 2010-2011, 2011-2012 Season: 2010-2011, 2011-2012			
1a	Median: 22 Min: 16, Max: 49 Season: 20 Std Dev: 10	Min: 17 Max: 49 Season: 20 Std Dev: 10	+0.0000	+0.0000
1b	Season: 20, 21 Min: 17, Max: 49, Std: 10.0 Season: 20, 21 Std Dev: 10.0	Season: 20, 21 Min: 17, Max: 49, Std: 10.0 Season: 20, 21 Std Dev: 10.0	+0.0000	+0.0000
2a	Median: 10.0 Min: 0.0, Max: 24.0 Season: 10 Std Dev: 7.0	Median: 0.0 Min: 0.0, Max: 14.0 Season: 0 Std Dev: 4.0	+0.0000	+0.0000
2b	Season: 10 Min: 0.0, Max: 24.0 Season: 10 Std Dev: 7.0	Season: 0 Min: 0.0, Max: 14.0 Season: 0 Std Dev: 4.0	+0.0000	+0.0000
3a	Median: 10.0 Min: 0.0, Max: 24.0 Season: 10 Std Dev: 7.0	Median: 0.0 Min: 0.0, Max: 14.0 Season: 0 Std Dev: 4.0	+0.0000	+0.0000
3b	Season: 10 Min: 0.0, Max: 24.0 Season: 10 Std Dev: 7.0	Season: 0 Min: 0.0, Max: 14.0 Season: 0 Std Dev: 4.0	+0.0000	+0.0000
4a	Median: 10.0 Min: 0.0, Max: 24.0 Season: 10 Std Dev: 7.0	Median: 0.0 Min: 0.0, Max: 14.0 Season: 0 Std Dev: 4.0	+0.0000	+0.0000
4b	Season: 10 Min: 0.0, Max: 24.0 Season: 10 Std Dev: 7.0	Season: 0 Min: 0.0, Max: 14.0 Season: 0 Std Dev: 4.0	+0.0000	+0.0000

Notes: 1. Study 1: 2010-11, 2011-12
2. Study 2: 2010-11, 2011-12
3. Study 3: 2010-11, 2011-12
4. Study 4: 2010-11, 2011-12

In a lecture several weeks back now, I outlined what I was able to see with meconium studies from Turkey (Turker et al. 2013), Taiwan (Jiang et al. 2014), and Canada (MIREC; Arbuckle et al. 2016). I also previewed at least 2 additional articles (Lall et al. 2005, Haram-Mourabet et al. 1998) that were locked behind paywalls, even with MSU's subscriptions.

I'm guessing you & your office have prepared some type of literature review that contextualizes some of the results provided in the McDermott et al. paper. Would you be willing to share that with me as I evaluate these student essays the week after our Spring Break (week of March 23)?

(If not, no worries.)

I'll look forward to meeting you in person at some point!

Tony

--

Tony Hartshorn
Associate Professor, Soil Interrogation Lab

Dept. of Land Resources & Environmental Sciences, 811 Leon Johnson Hall

Montana State University, Bozeman, MT 59717

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Tony Hartshorn
Associate Professor, Soil Interrogation Lab
Dept. of Land Resources & Environmental Sciences, 811 Leon Johnson Hall
Montana State University, Bozeman, MT 59717

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